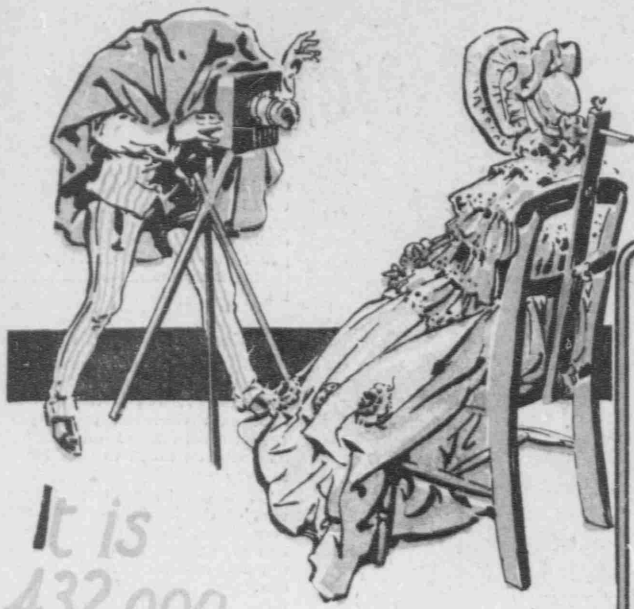


# PHOTOGRAPHY'S ADVANCE IN SIXTY-SIX YEARS



It is  
432,000  
Times as Fast  
as in the Art's  
Beginning.



America's First Photograph—  
Six Minutes Sitting in Summer  
Sun Required

IN ONE of the recent cup races a snapshot photograph, made in the 1200th part of a second, showed distinctly the spokes of an automobile going at the rate of eighty miles an hour.

This is of no especial interest—the thing could be duplicated by almost anyone with a modern camera—except as it furnishes by contrast a striking illustration of the progress of photography in the sixty-six years since it was introduced in America.

That long ago, in the blazing heat of a noonday summer sun, Miss Dorothy Draper, her face covered with white metallic powder to give it reflective quality, sat absolutely motionless for six minutes on the roof of Chrysalis College, New York city, while her brother, Dr. John W. Draper, exposed a Daguerreotype of her—the first successful photographic portrait ever made in this country.

The picture of Barney Oldfield in his automobile was made 432,000 times as fast as that of Miss Draper!

Doesn't this sound more like a fable of the early ages than a cold statement of fact? But it by no means tells of all the wonderful things that child of the witch and wizard—invention—has brought to pass in the art of mechanical picture making.

TODAY one might make the most chimerical statement about photography without creating any particular sensation, so notable have been the known achievements in the science.

Thus, when Dr. Edward F. Grun, of Brighton, England, announced that with his liquid lens he could make a photograph on a pitch-dark night, with fifteen minutes' exposure, he was not only given the ear of the scientific world, but was immediately accorded the honors his genius deserved.

Yet it is only sixty-eight years—a period within the memory of men today active in photography—since Louis Daguerre was all but placed in an insane asylum because he persisted that his shadow image could be caught and held on a piece of silver plate!

Not only Daguerre's wife, but also one of the most celebrated physicians in Paris, was convinced that the man with such a "hallucination" should be placed in the asylum at Bicetre without delay; and only the opportune perfecting of the invention saved him from such a fate.

What would the Parisians have said if Daguerre had claimed, as a New York man did recently, that he could make a photographic ex-



Birds on the Wing

posure in the twenty-four thousandth part of a second?

Instead of questioning the latter's sanity, some of the leading scientists of the country went to his rooms for a demonstration. Not only was this successful, but the electrician who operated the Leyden battery said the spark, which was photographed, only occupied the one fifty-thousandth part of a second. But this was not an example of practical photography, such as the snapshotting of an auto going eighty miles an hour.

Concerning the rapidity of certain shutters, such as are used on action cameras, there is no unanimity of opinion; some experts contend that they are made to operate in the five-thousandth part of a second, and others maintain that the twelve-hundredth of a second exposure is the fastest for practical results.

But the point is that the camera these days can reach anything that can be seen with the naked eye, and finer distinctions than the eye is capable of.

Who, for instance, can say that he ever distinguished the detail in the wing of a hummingbird in flight? Yet a snap-shot of a hummingbird, made in the twelve-hundredth of a second, brings out every feather and marking distinctly.

Three things figure in such work—rapidity of shutter, strength of lens and sensitiveness of plate.

In the first place, the lens must be able to record the minutest action of light; then the shutter must be able to wink so fast that other rapidly moving light rays may not obliterate the first; and the plate must be able—like the brain back of the human eye—to retain the lightning-like impression cast upon it. All these things modern inventive genius has taken care of.

In the case of Dr. Grun's invention, a certain oil used between parts of the rectilinear lens mightily increases the refraction. With ordinary lights this lens will make an instantaneous picture in a theatre; and by moon-

light, it is the indelible, infallible chronicle of history; it is the handmaid of science.

Scientists by its aid are enabled to photograph the streak of lightning; the habitat and life of the insect; the birds in the air, the beasts in the track, the fishes in the water. They may catch the design of the falling snowflake, record the topography of the stars in the heavens; may even depict the vibrations of a sound wave—a thing that the eye cannot see.

To medical science it has been a boon, in that with X-rays accurate diagnosis of many human ailments may be instantly made. Place



In Striking Contrast With Work of Half a Century Ago.

Shows Detail of Humming Bird's Wing, Invisible to Human Eye.

which now enable the novice to do high-grade artistic work. A few years ago this was largely impossible on account of the weight and intricacy of cameras, plates, plate holders and tripods necessary to do satisfactory work.

Now the amateur may take a folding camera in his coat pocket, may operate it without a tripod (excepting for interior pictures and exteriors on cloudy days) and may secure really excellent results.

Then there is the enlarging process which makes it possible at slight expense to "throw up" from the negative a picture to any desired size, making studies in any color from green to sepia, suitable for framing.

And there is the film invention, which permits the photographer to carry with him on a local vacation, a foreign tour or a trip to the Arctic snows material on which to make hundreds of exposures without appreciable weight.

In line with this is the tank developer invention, whereby the photographer with an army on the field or in a camp in the Maine woods may develop his work in strong daylight, altogether eliminating the dark room.

Enough film is made every year to reach around the world; and of sensitized paper, upon which the photograph is printed from the negative, one company alone makes enough to reach twice around the world and have 12,000 miles left over.

In printing methods there has been notable advancement, and now it is possible to print instantaneously on "developing" paper, taking but a few minutes more to finish the picture.

This means that a newspaper photographer may make a flashlight of a banquet at midnight, develop, fix and wash his plate, print from the wet negative on developing paper by means of artificial light; develop, fix and wash his print—all in less than a half hour; and, again, largely by virtue of the wet plate photography process used in engraving the plate, a cut of the photograph may appear in the paper which goes to press at 2 o'clock.

A far cry from the picture for which Miss Draper sat in New York back in 1840!

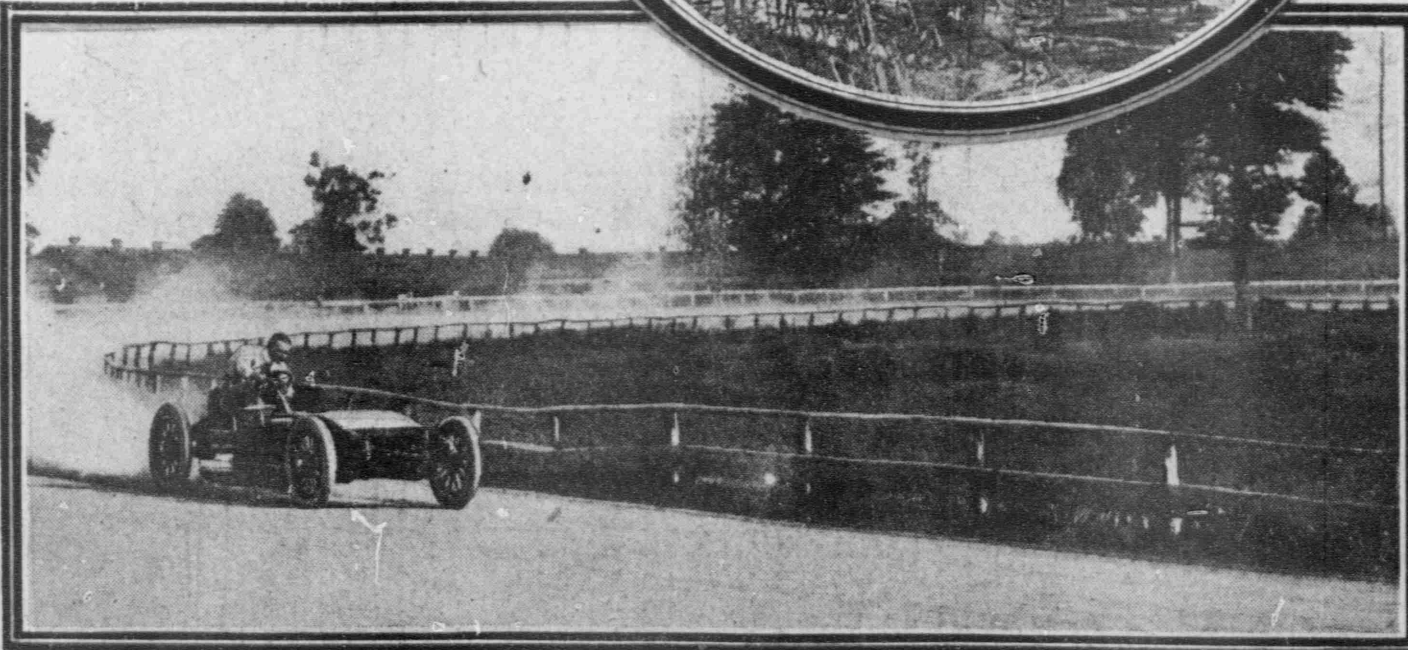
Although the principle of photography was established by the Frenchman, Daguerre, the process was imperfect and incapable of operation. It was Dr. Draper's improvement which made it possible to apply photography to the representation of the human countenance.

He was a professor in the college department of the University of New York, and it was on the roof of the college building that his sister sat for six minutes to have her picture taken.

Dr. Draper sensitized the plate with silver solution in a dark tent which he erected on the roof of the college, and this made his hands as black as coal all the way up to the elbows. This picture was not a negative, but a positive.

This means that but one copy of it was possible; but now as many prints as desired may be made from a single negative.

The development of modern rapid photography began with Scott Arthur's introduction of the dry collodion process in 1851. Perfection of mechanism has been going on continually since.



Taken in 1-1200 Part of a Second—Shows Spokes in Racing Automobile Wheel.

Photographs reproduced by courtesy of the Eastman Kodak Company

light, outdoors, in one minute.

Strangest of all is the fact that it will make a photograph on a dark night, for this proves that what we call darkness is but a degree of lightness to which the human eye will not respond, but to which this lens will.

Into so many lines of progress has photography forced its way that it would be difficult to imagine what the world would now be without it.

It is illustrating newspapers, magazines and

the patient on his back, with a sensitive plate under him and a bulb emitting a greenish light over him; develop the plate, and you can tell instantly whether a rib is broken or a pin or other foreign matter is imbedded in the flesh.

Industrially, this science is an aid in many lines; it has made the beautiful half-tone quickly made line cut supersede the steel engraving and woodcut; it has taken the place of thousands of hand engravers in the lettering and decorating of watch cases, and is generally

used in the designing of textiles.

In law it is used for identification; for securing evidence, for copying manuscript. The detective carries a camera under his coat, with the lens protruding through a buttonhole; his enemy, the crook, has taken advantage of photography to help him with forging and blackmailing.

In warfare the kodak is used to get information concerning fortifications and topical conditions, and, if necessary, your daring young



officer may make his studies from a balloon. Trick photography furnishes its pleasure and puzzling interest. The biograph delights audiences with its vivid reproduction of moving scenes.

The sportsman desiring a new sensation goes on a still hunt, not to kill game, but to "shoot" it with his camera; and wonderful have been the results of this pastime.

And now, by various scientists, color photography is being perfected, so that before long, it is believed, it will be possible for an amateur to reproduce scenes or objects in their natural colors.

But to the average person the wonders of modern photography centre in the magical strides that have been made for the amateur.